

WHAT IS CLAIMED IS:

1. A method for producing a spectrogram (122, 128) from a plurality of two or three dimensional ultrasound images depicting motion comprising:
 - 5 delineating a region of interest (ROI) (102, 108) in one of the images, the ROI (102, 108) comprising a plurality of pixels where motion is present in the image;
 - forming histograms of the motion data of the pixels of the ROI (102, 108) in a plurality of images over a plurality of defined temporal intervals;
 - mapping the histograms to temporally discrete display elements; and
 - 10 displaying the display elements as a spectrogram for the ROI (102, 108).
2. The method of Claim 1, wherein the ultrasound images comprise colorflow images, and wherein the defined temporal intervals comprise frame rate intervals.
 - 15 3. The method of Claim 1, wherein the motion data of the pixels of the ROI (102, 108) comprises at least one of velocity information and Doppler power information.
 - 20 4. The method of Claim 2, further comprising capturing a sequence of colorflow images in an image buffer.
 - 25 5. The method of Claim 1, wherein displaying further comprises displaying a two or three dimensional image on which an ROI (102, 108) is delineated, wherein the spectrogram (122, 128) is concurrently displayed.
 - 30 6. A method for displaying the distribution of a motion characteristic occurring at a region of interest (102, 108) in a two or three dimensional ultrasound image of the body comprising:
 - acquiring a sequence of spatially dimensioned ultrasound images in which a motion characteristic is displayed;

delineating a region of interest (ROI) (102, 108) in one of the images where motion is present in the image;

processing the motion data from image points of the delineated ROI (102, 108) to determine the distribution of a motion characteristic as a function of time;

5 and

displaying the distribution of the motion characteristic as a function of time.

7. The method of Claim 6, wherein the images comprise color Doppler
10 images.

8. The method of Claim 7, wherein the motion characteristic comprises blood flow velocity.

15 9. The method of Claim 8, wherein delineating further comprises delineating a plurality of pixels in one of the images.

10. The method of Claim 9, wherein processing further comprises processing the motion data of pixels spatially corresponding to the ROI (102, 108) in
20 each of the color Doppler images.

11. The method of Claim 10, wherein processing further comprises producing a histogram of the motion data of the ROI (102, 108) of each color Doppler image.

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12. The method of Claim 11, wherein displaying further comprises mapping histogram data to a plurality of temporal display elements, wherein a display (120) of the temporal display elements illustrates the distribution of the motion characteristic as a function of time.

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13. The method of Claim 7, wherein the motion characteristic comprises blood flow velocity derivatives in the temporal or spatial domain.

14. The method of Claim 7, wherein the motion characteristic comprises tissue motion velocity or its derivatives in the temporal or spatial domain.

5 15. An ultrasonic diagnostic imaging system which provides motion information concerning a location in the body comprising:

an ultrasound probe (10) which transmits ultrasonic energy and receives ultrasonic echo signals in response;

10 a beamformer (12) coupled to the probe which forms coherent echo signals from spatial locations in the body;

 a motion processor responsive to the spatial echo signals which produces image data depicting motion;

 a display (90) responsive to the image data which produces two or three dimensional images depicting motion on a spatial basis;

15 a user control (70) by which a user can delineate a region of interest (102, 108) in an image depicting motion;

 a motion characteristic processor, responsive to image signals depicting motion of a region of interest (102, 108) which computes the distribution of a motion characteristic as a function of time,

20 wherein the display (90) displays the distribution of a motion characteristic as a function of time for a delineated region of interest (102, 108).

16. The ultrasonic diagnostic imaging system of Claim 15, wherein the motion processor comprises a Doppler signal processor.

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17. The ultrasonic diagnostic imaging system of Claim 15, wherein the image data comprise colorflow Doppler data.

30 18. The ultrasonic diagnostic imaging system of Claim 15, wherein the display of the distribution of a motion characteristic as a function of time comprises a spectrogram display (120).

19. The ultrasonic diagnostic imaging system of Claim 15, wherein the display (120) is operated to concurrently display a two or three dimensional image containing a region of interest (122, 128) and a spectrogram illustrating the velocity variation over time for the region of interest (122, 128).

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20. The ultrasonic diagnostic imaging system of Claim 15, wherein the motion processor comprises one of a phase-domain or a time-domain signal processor.

21. The ultrasonic diagnostic imaging system of Claim 15, wherein the
10 motion characteristic processor comprises a histogram processor (68).